MAX300-CAT

Laboratory Gas Analyzer

Extrel
www.extrel.com

PRODUCT NOTE

- Real-Time Gas Analysis
- Catalysis
- Reaction Monitoring
- Environmental Research

Introducing the MAX300-CAT

Fast, Flexible Quantitative Gas Analyzer

The MAX300-CAT is a high-sensitivity, quantitative gas analyzer for catalysis, reaction monitoring, and environmental research.

Fast and powerful, this quadrupole mass spectrometer performs high precision quantitative analysis on every component in a gas or vapor mixture, and can be equipped for the fully-automated sampling of multiple gas channels.

With the ability to track concentration changes from ppb levels to 100% and continuous data updates in seconds, the MAX300-CAT provides a compact, flexible platform optimized for gas reaction studies in catalysis, bioreactor control, process development, and environmental analysis.

MAX300-CAT Laboratory Gas Analyzer

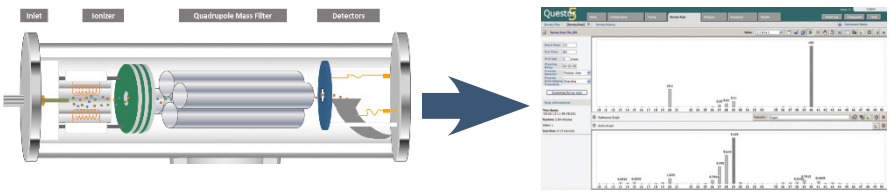
The MAX300-CAT is fast, compact, and easy to use. It can measure any gas or vapor sample concentration from ppb levels to 100%.

Laboratory Gas Analyzer Features

- Measures any gas or vapor sample
- Real-time analysis of the input and effluent streams reveals what is happening in the reaction
- Fast response: measures changes to sample concentration in <300 ms
- High sensitivity: detection limit 50 ppb
- Data acquisition: up to 1000 measurements/second
- 1-100, or 1-300 amu mass range
- Complete quantitative sample composition
- Sample selector options for up to 61+ sample streams

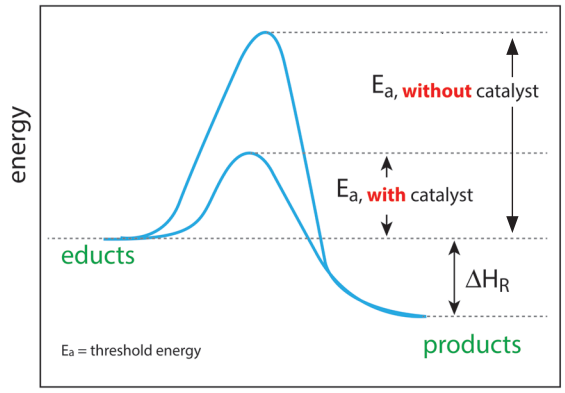
MAX300-CAT Quadrupole Advantage

The mass spectrometer uses an ionizer to break sample molecules into charged fragment ions that are separated based on their mass-to-charge ratio as they move through the electric fields generated by the quadrupole mass filter. The ions register a current at the detector, creating a set of peaks called a mass spectrum. Each compound has a unique spectrum, making mass spectrometry a highly selective, flexible technique.



Accurate Data, Endless Utility

Simply select the gases to measure, or the mass range to scan, in the software and the MAX300-CAT is configured to monitor a new reaction or process.



Gas and Vapor Analysis
Catalysis
Reaction Monitoring and Kinetics
TPD/TPR/TPO
Combustion Studies
Process Development
Vapor Deposition

Gas Phase Synthesis
Evolved Gas Analysis
Bioreactor Monitoring
Organic Chemistry

Environmental Research
Fuel Cell Studies
Alternative Fuels
Gasification
Air Monitoring

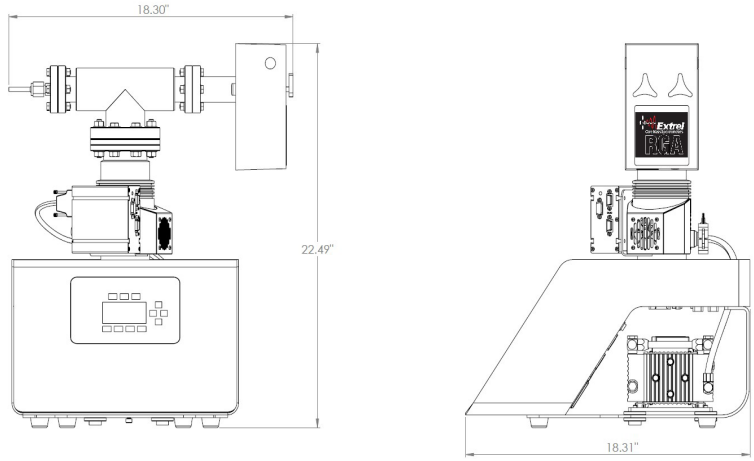
Pure Gas Analysis
Trace Contamination
Pharmaceutical Solvents
Semiconductor Manufacturing
Scrubber Efficiency
Food and Beverage Gas
Gas Mixing

System Specifications:

- Detectable compounds: Any gas or vapor sample
- Detectors: Faraday/electron multiplier
  - Analysis range: $1x10^{-6}$- $5x10^{-13}$ Torr (100% - 0.5 ppm)*
  - Low detection limit: $5x10^{-14}$ Torr (50 ppb)**
- Analysis rate: Up to 1000 measurements per second
- Gas consumption: 10 µL/min
- Heated inlet option available
- Ionization energy control for reduced fragmentation
- Software:
  - VacuumPlus control software, standard
  - Questor5 upgrade, optional
- Computer interface: RS-232C or USB
- Filaments: Two, one active and one spare
  - Over-pressure protection provided by built-in Pirani and BA gauges
- Mass range options: 1-100, 1-300 amu
- 6 mm quadrupole mass filter
- Weight: 55 lbs. (25 kg)
- Power supply: 110/230 VAC, 50/60 Hz
- Dimensions (L x W x H): 465 x 465 x 571 mm
- Standard inlet length: 50 cm

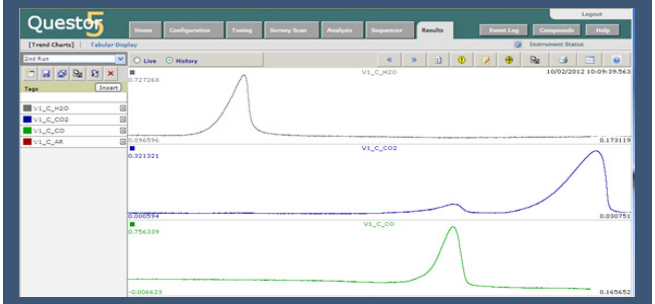
* Standard multicomponent analysis, measured at <2 seconds/component

** Demonstrated on argon isotopes in air



Exceptional Worldwide Service and Support: For over 50 years, Extrel has been committed to providing the highest quality support services for the thousands of instruments installed worldwide. Factory trained and certified personnel are available to provide industry-leading support to our customers at every stage of their analytical process.

Questor5 Quantitation Software Features



Real-time, continuous, total composition measurements of any gas or vapor sample

Component	[C] (%)	STD (% absolute)
H_2	0.6	0.03
N_2	78	0.06
O_2	20.9	0.06
Ar	0.93	0.0075
CO_2	0.05	0.003

Fully automated, high precision, high stability quantitative analysis of multiple sample streams

- Number of components: Unlimited
- Number of analysis routines: Unlimited
- Automatic removal of spectral overlap
- Data recorded as % or ppm
- Manual or automated calibration
- Automated sample selector configurations:
  - 4, 8, 16, 31, 46, 61+
- Number of user configurable data tags and alarms: Unlimited
- Security: 21 CFR Part 11
- Security levels: Administrator, User, Viewer
- Comprehensive spectral library included
  - NIST MS database and spectrum matching software upgrade, optional
- Analysis can be triggered by external devices
- External communications
  - Ethernet, Modbus serial, digital I/O, analog I/O, OPC

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